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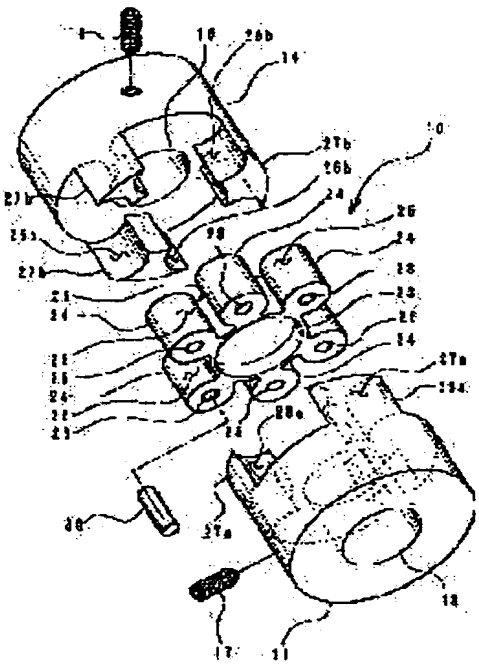
(54) SHAFT COUPLING

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a rubber shaft coupling at a low cost, which absorbs vibrations, impacts and noises, implements electrical insulation between two shafts, eliminates the need for lubrication, and has excellent durability.
SOLUTION: A center hub 23 of the rubber shaft coupling 10 is sandwiched between discs 11, 14 fixed respectively on a driving shaft side and a driven shaft side, concentrically matched with them, and is engaged with both of the discs 11, 14 to transmit rotations. Pillar portions 24 of which shapes are the same as the center hub 23 are disposed and connected around an outer periphery of the center hub 23. The discs 11, 14 different from each other have projections 27a, 27b with engaging faces 26a, 26b. Side faces 25 of the pillar potions 24 are closely attached on the engaging faces 26a, 26b to be in the shape so that the engaging faces 26a, 26b and the pillar potion 24 are complimented with each other. Therefore, compressive stress caused by the shift of an axial center is disposed.



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CLAIMS

[Claim(s)]
[Claim 1] The central hub where are the shaft coupling which is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, is adjusted by this alignment, engages with said both disks, and transmits rotation, and the die length of shaft orientations is shorter than a dimension, The shaft coupling characterized by having consisted of the even cylinder sections formed at equal intervals successively by the periphery of this central hub at the radial, having arranged the axis of this cylinder section, and the axis of said central hub in parallel, having arranged the die length of shaft orientations identically and forming it.
[Claim 2] It is the shaft coupling according to claim 1 which the engagement section of said mutually different disk is located in the both sides of the side face in which said each of cylinder section is engaged, and is characterized by carrying out fitting of said cylinder section and engagement section of said disk densely in the configuration complemented mutually.
[Claim 3] The shaft coupling according to claim 1 characterized by forming said cylinder section in a solid.
[Claim 4] The shaft coupling according to claim 1 characterized by preparing a part for a centrum in said cylinder section.
[Claim 5] The shaft coupling according to claim 4 characterized by filling up a part for the centrum of said cylinder section with the material for which degrees of hardness differ.
[Claim 6] The shaft coupling according to claim 4 or 5 characterized by being filled up with the material of a path which becomes cylindrical from the path size a little about a part for the centrum of said cylinder section at a part for nothing and this centrum.
[Claim 7] It is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, and this alignment has consistency. It is the shaft coupling which engages with said both disks and transmits rotation to a follower shaft from a driving shaft. It is the shaft coupling which it consists of even cylinder members, and the engagement section of said mutually different disk is located in the both sides of the side face in which this each of cylinder member is engaged, and is characterized by carrying out fitting of the engagement section of a cylinder member and said disk to the configuration complemented mutually densely.
[Claim 8] Said cylinder member is a shaft coupling according to claim 7 characterized by performing beveling to the both-ends surface part.
[Claim 9] It is the shaft coupling according to claim 7 which establishes a screw hole in the end face which counters each of the engagement section of said disk, and is characterized by forming these screw holes successively with the hole from opening of the above-mentioned end face and the field of the opposite side.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to amelioration of the bending joint using especially a compression set with respect to the shaft coupling which transmits power.
[0002]
[Description of the Prior Art] A shaft coupling is used for the axis to tell movement to the second shaft which is in agreement in approximation with the same rotational speed from a certain shaft, a rigid shaft coupling of structure with which shaft-coupling components have got into gear mutually continuously during the drive, or its shaft-coupling component can be removed, or it is the clutch of the structure which can be switched and this invention belongs to the former.
[0003] (a) is the sectional view where drawing 4 met the A-A line of (b) with the conventional rubber shaft coupling 105, and the sectional view where (b) met the B-B line of (a). The rubber shaft coupling 105 is fastened through a flange 103,104 between two shafts 101,102, and it is engaged by turns [the click 108,109 and by turns] which project from the flange 103,104 of both sides in the flat-surface projection 107 prepared in the radial from the hub 106.
[0004] Moreover, drawing 5 is the shaft in which the rubber shaft coupling 205 of another conventional example is shown, and a right-angled top view. The rubber shaft coupling 205 differs from the above-mentioned conventional example at the point which made the cross section of the radial projection which protruded on the hub 206 the shape of a drum. any rubber shaft coupling 105,205 is easy structure, and absorbing vibration, an impact, the noise, etc., electric insulation's being obtained between two shafts, and lubrication are unnecessary -- etc. -- there is an advantage.
[0005]
[Problem(s) to be Solved by the Invention] Generally most rigid shaft couplings, i.e., the shaft coupling with which shaft-coupling components are combined mutually firmly, are not seen. When the most, in order to accustom the inequality of an axis location, and change rather, shaft-coupling components need to enable it to move somewhat relatively. Since this compensates the difference in the axial center produced by the inaccuracy in the case of an assembly, and wear of bearing to some extent, it may have various possibility like that it can move in the direction of an axis, that it can move to radial, or leaning an axis again.
[0006] However, if it sees about two revolving shafts with a cardiac gap of deltad when it thinks on the assumption that these as it is shown in drawing 6 for example In the rubber shaft coupling 105 of drawing 6 (a), since the radial projection 107 of a periphery is a flat surface When the component of a force of a tangential direction does not act on the projection 107 (not shown) parallel to the gap direction, but the component of a force f1 of a tangential direction produces it from the time of inclining to the gap direction at it and it becomes the gap direction and a perpendicular, shear stress p becomes the component of a force f2 of a tangential direction as it is at projection 107.
[0007] Moreover, if it is in the projection 207 of the shape of a cross-section drum of drawing 6 (b), shear stress p becomes tangential force as it is, and the component-of-a-force burden f4 of a tangential direction acts on projection 207, when perpendicular to ****** and the gap direction, as component of a force f3 has arisen in the tangential direction and the inclination of the projection 207 to the gap direction increases whenever further, also when parallel to the gap direction. Component of a force f5 does not participate in a compression operation by the coplanar force. That is, if the conventional example of drawing 4 and drawing 5 is compared, since stress will distribute also to the projection of others [direction / of the drum-like projection 207], it turns out that the burden by the shear stress concerning the projection 107,207 which has turned to the location perpendicular to the gap direction is few.
[0008] Thus, although the compressive stress f produced in a tangential direction joins the turning effort transmitted during rotation to projection 107 in process of rotation with the stress p by cardiac gap, since magnitude changes with rotation locations of projection 107 and the ingredient fatigue by repeated stress generates this compressive stress f, the endurance or the life of a rubber shaft coupling becomes a problem. Since it is a device especially with little noise, before noticing, fatigue advances, sudden fatigue breaking is caused and ****** danger is about the serious damage for other rolling mechanisms.
[0009] Then, the purpose of this invention is offering the shaft coupling excellent in endurance by low cost.
[0010]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the shaft coupling concerning this invention The central hub where are the shaft coupling which is fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, is adjusted by this alignment, engages with said both disks, and transmits rotation, and the die length of shaft orientations is shorter than a dimension, It consists of the even cylinder sections formed at equal intervals successively by the periphery of this central hub at the radial, and the axis of this cylinder section and the axis of said central hub are arranged in parallel, and let it be a summary to have arranged the die length of shaft orientations identically and to have formed it.

[0011] The engagement section of said mutually different disk is located in the both sides of the side face in which said each of cylinder section is engaged, and fitting of said cylinder section and engagement section of said disk is densely carried out in the configuration complemented mutually. Said cylinder section may be formed in a solid and may prepare a part for a centrum. Moreover, a part for the centrum of said cylinder section may be filled up with the material for which degrees of hardness differ. Or a part for this centrum may be filled up with the material of a bigger path a little than the path of nothing and its part as it is cylindrical.

[0012] Furthermore, other shaft couplings of this invention are fastened between the disks fixed to each axis end which a driving shaft and a follower shaft counter, and are adjusted by this alignment. It is the shaft coupling which engages with said both disks and transmits rotation to a follower shaft from a driving shaft. It consists of even cylinder members, the engagement section of said mutually different disk is located in the both sides of the side face in which this each of cylinder member is engaged, and the engagement section of a cylinder member and said disk makes it a summary to carry out fitting to the configuration complemented mutually densely. In the above-mentioned shaft coupling, a screw hole may be established in the end face which said cylinder member may bevel to a both-ends surface part, and counters each of the engagement section of said disk, and this screw hole may be constituted as formed successively with the hole from opening of the above-mentioned end face and the field of the opposite side.

[0013]

[Embodiment of the Invention] The gestalt of operation of the shaft coupling concerning this invention is explained based on a drawing below. The perspective views and drawing 2 which show one example of the shaft coupling 10 concerning this invention in drawing 1 are an axis in the example of drawing 1 , and a right-angled side elevation. And drawing 3 is the sectional view which met three to 3 line of drawing 2 . In drawing 1 - drawing 3 , the disk in which the bore 13 to which 11 fits into a driving shaft 12 was formed, and 14 are the disks in which the bore 16 which fits into the follower shaft 15 was formed, and consist of same geometries except the shaft diameter which each applies. The push screws 17 and 18 or keys 19 and 20 are suitable fixed means, and disks 11 and 14 are fixed to each shaft 12 and 15.

[0014] A shaft coupling 10 may be a multiple column, although it consists of the one shaping member made of rubber and the configuration of the central hub 23 is illustrated by the cylinder by a diagram. It is regular intervals, for example, the cylinder sections 24 of the isomorphism of six pieces are formed successively by the periphery of the central hub 23 at a radial. The central hub 23 and the cylinder section 24 make an axis parallel, arrange shaft orientations with the same die length (thickness), and really fabricate them with the rubber of the proper degree of hardness which suits transfer torque. The number and the dimension of the cylinder section 24 are suitably chosen by the shaft diameter of a driving shaft 12 or the follower shaft 15, the outer diameter of disks 11 and 14, or transfer torque.

[0015] The projections 27a and 27b which the appearance of each disks 11 and 14 was formed in the same configuration, and formed the engagement sides 26a and 26b of the isomorphism which complements the cylinder section side face 25 of a shaft coupling 10 are arranged at equal intervals as the engagement section at a radial at the opposed face of each disks 11 and 14. The both sides of the cylinder section side face 25 of the rubber shaft coupling 10 are pinched by the projections 27a and 27b of mutually different disks 11 and 14. The engagement sides 26a and 26b of the projections 27a and 27b of disks 11 and 14 stick the perimeter of the rubber shaft-coupling cylinder section 24, and it performs torque transmission so that it may be illustrated. Therefore, the compressive stress by cardiac gap is distributed by the periphery of the rubber shaft coupling 10, and concentrating on a specific angle-of-rotation part is avoided.

[0016] Moreover, as a two-dot chain line shows, a centrum 28 can be formed in each cylinder section 24, wall thickness t can be changed variously, and compression deformation can be adjusted. Furthermore, compression deformation can be changed and it can be simply made adapted for use torque by embedding the packing 30 of the ingredient with which degrees of hardness differ into a centrum 28. In this case, compression deformation is changeable also by embedding the packing 30 of a path which becomes cylindrical from nothing and its path size a little about a centrum 28.

[0017] Drawing 7 is the perspective view showing other examples of the shaft coupling of this invention, and expresses a member and a part the same [the same sign as drawing 1], or similar. drawing 7 — setting — a shaft coupling — ten — ' — for example, — rubber — make — six — a piece — a cylinder — a member — 24 — ' — from — changing — the — the number — and — a dimension — a driving shaft — 12 — a follower — a shaft — 15 — a shaft diameter — a disk — 11 — 14 — an outer diameter — or — transfer — torque — suitably — choosing — having . In addition, 28' is a centrum and 30' is packing.

[0018] As mentioned above, the appearance of each disks 11 and 14 is formed in the same configuration, and the projections 27a and 27b in which the engagement sides 26a and 26b of the isomorphism which complements cylinder member side-face 25of shaft-coupling 10" were formed are arranged at equal intervals as the engagement section

at the radial at the opposed face of each disks 11 and 14. The both sides of cylinder member side-face 25' which constitutes a shaft coupling 10 are pinched by the projections 27a and 27b of mutually different disks 11 and 14. The engagement sides 26a and 26b of the projections 27a and 27b of disks 11 and 14 stick the perimeter of cylinder member 24', and it performs torque transmission. Cylinder member 24' which constitutes shaft-coupling 10' is not limited to the product made of rubber, if it is an ingredient with flexibility, anything, is good and an assembly not only becomes easy, but it can make the recess over the angle of deviation by performing beveling 31 to a both-ends surface part, as shown in drawing 8 .

[0019] Furthermore, screw hole (33a) 33b is prepared in end-face (32a) 32b which counters each of engagement section (27a) 27b of disks 11 and 14, and these screw holes are formed [end face / above-mentioned] successively with hole 35b from opening 34b of the field of the opposite side. This is utility when disassembling a shaft coupling. That is, since the tip of a rod 37 presses each engagement section end face by inserting the rod 37 which has the screw section 36 as shown in drawing 9 into hole 35b from opening 34b, and making the screw section 36 screw in screw hole 33b, the assembled shaft coupling can be disassembled easily. In addition, at least two above-mentioned screw holes are good to prepare in a location which is mutually different about 180 degrees.

[0020]

[Effect of the Invention] absorbing vibration, an impact, the noise, etc. at the above explanation according to the shaft coupling concerning this invention so that clearly, electric insulation's being obtained between two shafts, and lubrication are unnecessary — etc. — with an advantage maintained, by having used the engagement part of a shaft coupling as the cylinder, rotation stress is distributed and endurance improves. Moreover, by making the cylinder member of a shaft coupling hollow, changing wall pressure or embedding the packing with which a degree of hardness differs from a path inside, compression deformation can be adjusted variously and it can respond to various transfer torque easily. Furthermore, since the pair of the engaged partner disk is of the same type and can be fabricated, it is efficiently producible. Furthermore, if said even cylinder members are used as a shaft coupling, without using metal mold, since there is no central hub, from the round bar etc., but only cutting can be manufactured easily, and moreover the degree's of freedom of a design improves, and it can make that it is still cheaper.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view showing one example of the shaft coupling concerning this invention.
[Drawing 2] They are an axis in the example of drawing 1, and a right-angled side elevation.
[Drawing 3] It is the sectional view which met three to 3 line of drawing 2.
[Drawing 4] The sectional view where (a) met the A-A line of (b), and (b) are the sectional views which met the B-B line of (a) in the conventional rubber shaft coupling.
[Drawing 5] They are the axis which shows another example of the conventional rubber shaft coupling, and a right-angled side elevation.
[Drawing 6] It is the explanatory view showing the operation condition of the turning effort in the conventional rubber shaft coupling.
[Drawing 7] It is the perspective view showing other examples of this invention.
[Drawing 8] It is drawing showing an example of the cylinder member used for the example of drawing 7.
[Drawing 9] It is drawing showing an example of the rod for decomposition of a shaft coupling.
[Description of Notations]
10 Shaft Coupling
11 Disk
12 Driving Shaft
14 Disk
15 Follower Shaft
23 Central Hub
24 Cylinder Section
24' Cylinder member
25 Cylinder Section Side Face
26 Engagement Side
27 Projection
30 Packing

[Translation done.]

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Ｆ１６Ｆ　15/136		Ｆ１６Ｆ　15/136	Ｂ

審査請求　未請求　請求項の数９　ＯＬ　（全　６　頁）

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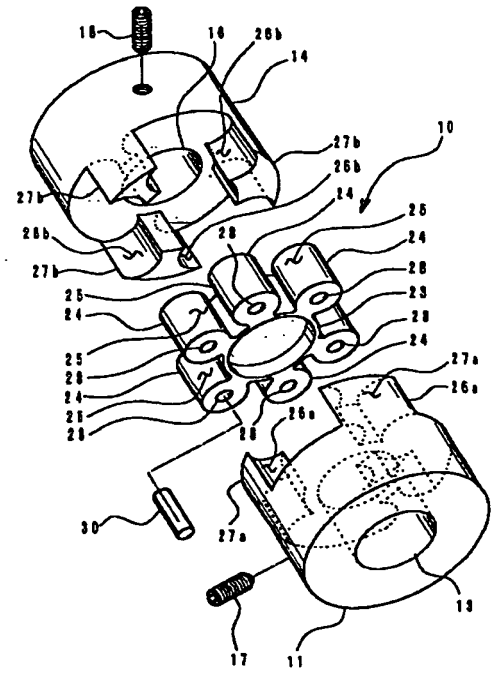
(54)【発明の名称】　軸継手

(57)【要約】
【課題】　振動、衝撃、騒音などを吸収し、二軸の間に電気絶縁が得られ、潤滑が不要で、耐久性に優れたゴム軸継手を低コストで提供する。
【解決手段】　駆動軸側と従動軸側それぞれに固定した円板１１，１４の間に挟装されて同心に整合され、円板１１，１４の両方と係合して回転を伝達するゴム軸継手１０の中央ハブ２３には外周に同形の円柱部２４が連設され、円柱部２４の側面２５には互いに異なる円板１１，１４の突起２７ａ，２７ｂに設けた係合面２６ａ，２６ｂが円柱部２４と補完し合う形状で密着して、軸心のずれによる圧縮応力を分散する。



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【特許請求の範囲】

【請求項１】　駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して回転を伝達する軸継手であって、外形寸法より軸方向の長さが短い中央ハブと、この中央ハブの外周に放射状に等間隔で連設された偶数個の円柱部とからなり、この円柱部の軸線と前記中央ハブの軸線とを平行に配列し、軸方向の長さを同一に揃えて形成したことを特徴とする軸継手。

【請求項２】　前記円柱部それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、前記円柱部と前記円板の係合部は互いに補完する形状で密に嵌合されることを特徴とする請求項１に記載の軸継手。

【請求項３】　前記円柱部を中実に形成したことを特徴とする請求項１記載の軸継手。

【請求項４】　前記円柱部に中空部分を設けたことを特徴とする請求項１記載の軸継手。

【請求項５】　前記円柱部の中空部分を硬度の異なる素材で充填したことを特徴とする請求項４に記載の軸継手。

【請求項６】　前記円柱部の中空部分を円柱状となし、該中空部分にその径より若干大なる径の素材を充填したことを特徴とする請求項４又は５に記載の軸継手。

【請求項７】　駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して駆動軸より従動軸へ回転を伝達する軸継手であって、偶数個の円柱部材からなり、該円柱部材それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、円柱部材と前記円板の係合部は互いに補完する形状に密に嵌合されることを特徴とする軸継手。

【請求項８】　前記円柱部材は両端面部に面取りが施されていることを特徴とする請求項７に記載の軸継手。

【請求項９】　前記円板の係合部のそれぞれに対向する端面にネジ穴を設け、該ネジ穴は上記端面と反対側の面の開口からの穴と連設されていることを特徴とする請求項７記載の軸継手。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は動力を伝達する軸継手に係わり、特に圧縮変形を利用した撓み継手の改良に関する。

【０００２】

【従来の技術】軸継手は、ある軸からその軸線が近似的に一致する第二の軸に同一の回転速度で運動を伝えるのに使われ、軸継手部品が駆動中絶えず相互にかみあっているような構造の固定軸継手か、あるいは、その軸継手部品が取り外しできたり、切換できるような構造のクラッチで、本発明は前者に属するものである。

【０００３】図４は、従来のゴム軸継手１０５で（ａ）

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は（ｂ）のＡ－Ａ線に沿った断面図、（ｂ）は（ａ）のＢ－Ｂ線に沿った断面図である。二本の軸１０１，１０２の間にフランジ１０３，１０４を介してゴム軸継手１０５が挟装され、ハブ１０６から放射状に設けた平面突起１０７に両側のフランジ１０３，１０４から突出するつめ１０８，１０９と交互に係合している。

【０００４】また図５は別の従来例のゴム軸継手２０５を示す軸と直角な平面図である。ゴム軸継手２０５は、ハブ２０６に突設した放射状突起の断面を太鼓状とした点で上記従来例と異なる。いずれのゴム軸継手１０５，２０５も構造が簡単であり、振動、衝撃、騒音などを吸収することと、二軸の間に電気絶縁が得られること、潤滑が不要であるなどの利点がある。

【０００５】

【発明が解決しようとする課題】一般に固定軸継手つまり、軸継手部品が相互に強固に結合されている軸継手は殆どみられない。むしろ、大抵の場合、軸線位置の不一致や変化をならすために、軸継手部品がある程度相対的に動けるようにする必要がある。これは、組立ての際の不正確さや、軸受の摩耗により生じた軸心の違いをある程度補償するため、軸線方向に動けることや、半径方向に動けることや、また軸線を傾けることのようないろいろな可能性があり得る。

【０００６】しかしながら、これらを前提に考えると、図６に示されるように、例えばΔｄの心ずれがある二本の回転軸についてみると、図６（ａ）のゴム軸継手１０５では外周の放射状突起１０７が平面であるから、ずれ方向と平行な突起１０７（図示しない）には接線方向の分力は作用せず、ずれ方向に対して傾斜した時点から接線方向の分力ｆ1が生じ、ずれ方向と垂直になった時点で、突起１０７にはずれ応力ｐがそのまま接線方向の分力ｆ2となる。

【０００７】また、図６（ｂ）の断面太鼓状の突起２０７にあっては、ずれ方向と平行なときも接線方向に分力ｆ3が生じており、さらにずれ方向に対する突起２０７の傾斜が度を増すにつれて接線方向の分力負担ｆ4は逓増し、ずれ方向と垂直な時点では、突起２０７にはずれ応力ｐがそのまま接線力となって作用する。分力ｆ5は平面力で圧縮作用には関与しない。すなわち、図４と図５の従来例を比較すると、太鼓状突起２０７の方が他の突起にも応力が分散するので、ずれ方向と垂直な位置に回ってきた突起１０７，２０７にかかるずれ応力による負担は少ないことが分かる。

【０００８】このように、回転中に伝達する回転力には、心ずれによる応力ｐで接線方向に生じる圧縮応力ｆが、回転の過程で突起１０７に対して加わるが、この圧縮応力ｆは、突起１０７の回転位置によって大きさが異なり、繰返し応力による材料疲労が発生するので、ゴム軸継手の耐久性または寿命が問題になる。特に騒音が少ない機構であるから、気付かないうちに疲労が進行して

突然の疲労破壊を招き他の回転機構に重大な損傷をおよぼす危険性もある。

【０００９】そこで本発明の目的は、耐久性に優れた軸継手を低コストで提供することである。

【００１０】

【課題を解決するための手段】上記の目的を達成するために、本発明に係わる軸継手は、駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して回転を伝達する軸継手であって、外形寸法より軸方向の長さが短い中央ハブと、この中央ハブの外周に放射状に等間隔で連設された偶数個の円柱部とからなり、この円柱部の軸線と前記中央ハブの軸線とを平行に配列し、軸方向の長さを同一に揃えて形成したことを要旨とする。

【００１１】前記円柱部それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、前記円柱部と前記円板の係合部は互いに補完する形状で密に嵌合される。前記円柱部は中実に形成してもよく、中空部分を設けてもよい。また、前記円柱部の中空部分を硬度の異なる素材で充填してもよい。或いは、該中空部分を円柱状となし、その部分の径よりも若干大きな径の素材を充填してもよい。

【００１２】更に本発明の他の軸継手は、駆動軸および従動軸の対向する軸端それぞれに固定した円板の間に挟装されて同心に整合され、前記円板の両方と係合して駆動軸より従動軸へ回転を伝達する軸継手であって、偶数個の円柱部材からなり、該円柱部材それぞれが係合する側面の両側には互いに異なる前記円板の係合部が位置し、円柱部材と前記円板の係合部は互いに補完する形状に密に嵌合されることを要旨とする。上記軸継手において、前記円柱部材は両端面部に面取りを施してもよく、また前記円板の係合部のそれぞれに対向する端面にネジ穴を設け、該ネジ穴は上記端面と反対側の面の開口からの穴と連設されているように構成してもよい。

【００１３】

【発明の実施の形態】以下に本発明に係わる軸継手の実施の形態を図面に基づいて説明する。図１は本発明に係わる軸継手１０の一実施例を示す斜視図、図２は図１の実施例における軸線と直角な側面図である。そして、図３は図２の３－３線に沿った断面図である。図１～図３において、１１は、駆動軸１２に嵌合する内径１３を形成した円板、１４は、従動軸１５に嵌合する内径１６を形成した円板で、いずれも適用する軸径以外は同じ形状寸法で構成される。円板１１，１４は押しネジ１７，１８またはキー１９，２０など適当な固定手段で、それぞれの軸１２，１５に固定される。

【００１４】軸継手１０は、例えば、ゴム製の一体成形部材から成り、中央ハブ２３の形状が図では円柱で図示されているが、多角柱であってもよい。中央ハブ２３の外周に放射状に等間隔で、例えば六個の同形の円柱部２４が連設される。中央ハブ２３および円柱部２４は軸線を平行にして軸方向を同じ長さ（厚み）に揃え、伝達トルクに適合する適正な硬度のゴムで一体成形する。円柱部２４の個数および寸法は、駆動軸１２や従動軸１５の軸径や円板１１，１４の外径あるいは伝達トルクによって適宜選択される。

【００１５】各円板１１，１４の外形は同一形状に形成され、軸継手１０の円柱部側面２５を補完する同形の係合面２６ａ，２６ｂを形成した突起２７ａ，２７ｂが各円板１１，１４の対向面に係合部として放射状に等間隔で配置される。ゴム軸継手１０の円柱部側面２５の両側は、互いに異なる円板１１，１４の突起２７ａ，２７ｂによって挟持される。図示されるように、ゴム軸継手円柱部２４の周囲は円板１１，１４の突起２７ａ，２７ｂの係合面２６ａ，２６ｂが密着してトルク伝達を行う。従って、ゴム軸継手１０の外周には心ずれによる圧縮応力が分散され、特定の回転角度部位に集中することは避けられる。

【００１６】また、二点鎖線で示すように各円柱部２４に中空部２８を設け、壁厚ｔをいろいろに変化させて圧縮変形量を調整することができる。さらに、中空部２８の中に硬度の異なる材料の詰物３０を埋入することによって、圧縮変形量を変え、簡単に使用トルクに適応させることができる。この場合、中空部２８を円柱状となし、その径よりも若干大なる径の詰物３０を埋入することによっても圧縮変形量を変えることができる。

【００１７】図７は本発明の軸継手の他の実施例を示す斜視図で、図１と同一符号は同一又は類似の部材および部分を表わす。図７において、軸継手１０’は、例えば、ゴム製の６個の円柱部材２４’から成り、その個数および寸法は、駆動軸１２や従動軸１５の軸径や円板１１，１４の外径或いは伝達トルクによって適宜選択される。なお、２８’は中空部、３０’は詰物である。

【００１８】前述したように各円板１１，１４の外形は同一形状に形成されており、軸継手１０’の円柱部材側面２５’を補完する同形の係合面２６ａ，２６ｂを形成した突起２７ａ，２７ｂが各円板１１，１４の対向面に係合部として放射状に等間隔で配置されている。軸継手１０を構成する円柱部材側面２５’の両側は、互いに異なる円板１１，１４の突起２７ａ，２７ｂによって挟持される。円柱部材２４’の周囲は円板１１，１４の突起２７ａ，２７ｂの係合面２６ａ，２６ｂが密着してトルク伝達を行う。軸継手１０’を構成する円柱部材２４’は、ゴム製に限定されるものではなく、可撓性のある材料なら何でもよく、また図８に示すように両端面部に面取り３１を施すことにより組立てが容易になるばかりでなく、偏角に対する逃げを作ることもできる。

【００１９】更に円板１１，１４の係合部（２７ａ）２７ｂのそれぞれに対向する端面（３２ａ）３２ｂにネジ穴（３３ａ）３３ｂを設け、これらネジ穴は上記端面と

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は反対側の面の開口３４ｂからの穴３５ｂと連設されている。これは軸継手を分解する時に役立つものである。即ち、図９に示すようなネジ部３６を有するロッド３７を開口３４ｂから穴３５ｂ中に挿入し、ネジ部３６をネジ穴３３ｂに螺合させることにより、ロッド３７の先端がそれぞれの係合部端面を押圧するので、組立てられた軸継手を容易に分解することができる。なお、上記ネジ穴は、少なくとも２つ、互いにほぼ１８０°異なる位置に設けるのがよい。

【００２０】

【発明の効果】以上の説明で明らかなように、本発明に係わる軸継手によれば、振動、衝撃、騒音などを吸収すること、二軸の間に電気絶縁が得られること、潤滑が不要であるなどの利点を維持したまま、軸継手の係合部分を円柱としたことにより回転応力が分散され、耐久性が向上する。また、軸継手の円柱部材を中空にして壁圧を変えたり、内部に硬度又は径の異なる詰物を埋入することにより、圧縮変形量をさまざまに調整して種々の伝達トルクに簡単に対応することができる。さらには、係合する相手円板の対は同型で成形できるので、効率よく生産することができる。更に軸継手として前記円柱部材を偶数個用いるようにすれば、中央ハブがないので金型を用いることなく丸棒等より切削加工のみでも容易に製造でき、しかも設計の自由度が向上し、一層安価となし得る。

【図面の簡単な説明】

【図１】本発明に係わる軸継手の一実施例を示す斜視図である。

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＊【図２】図１の実施例における軸線と直角な側面図である。

【図３】図２の３－３線に沿った断面図である。

【図４】従来のゴム軸継手で（ａ）は（ｂ）のＡ－Ａ線に沿った断面図、（ｂ）は（ａ）のＢ－Ｂ線に沿った断面図である。

【図５】従来のゴム軸継手の別の実施例を示す軸線と直角な側面図である。

【図６】従来のゴム軸継手における回転力の作用状態を示す説明図である。

【図７】本発明の他の実施例を示す斜視図である。

【図８】図７の実施例に使用する円柱部材の一例を示す図である。

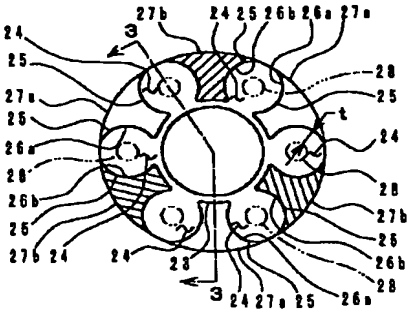
【図９】軸継手の分解用ロッドの一例を示す図である。

【符号の説明】

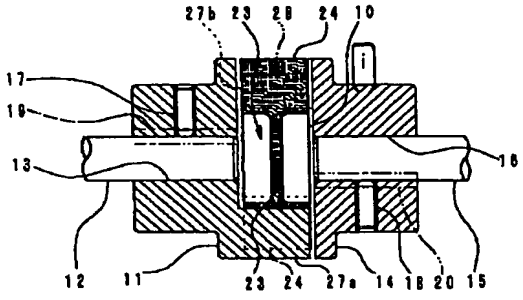
１０　軸継手
１１　円板
１２　駆動軸
１４　円板
１５　従動軸
２３　中央ハブ
２４　円柱部
２４'　円柱部材
２５　円柱部側面
２６　係合面
２７　突起
３０　詰物

＊

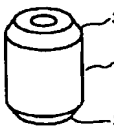
【図２】



【図３】

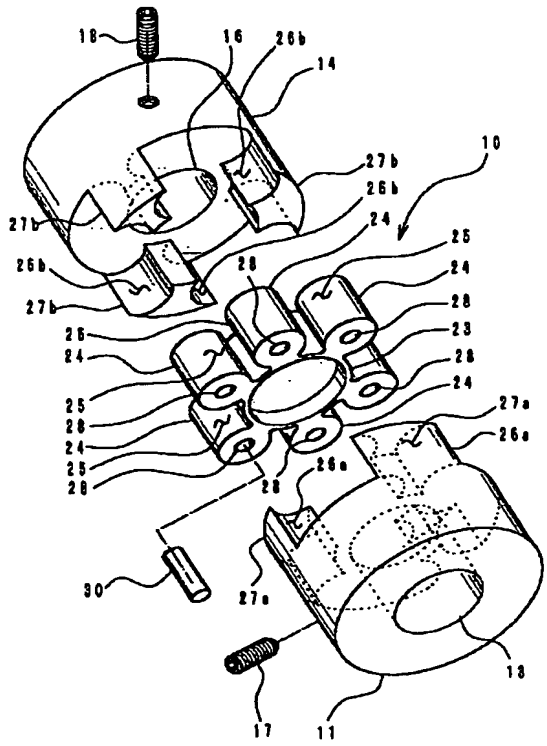


【図８】



【図９】

【図１】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16
26b
14
27b
10
26b
24
27b
25
26b
28
27b
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25
28
24
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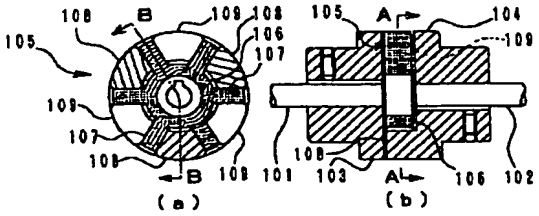
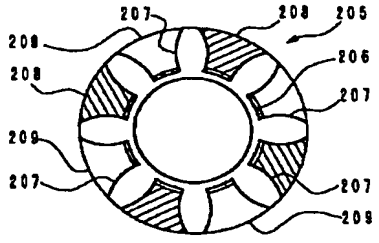
28
24
25
28
28
26a
27a
30
27a
13
17
11

【図４】


108
B
108
108
105
106
107
109
107
108
B
108
(a)
105
A
104
109
101
108
103
A
106
102
(b)

【図５】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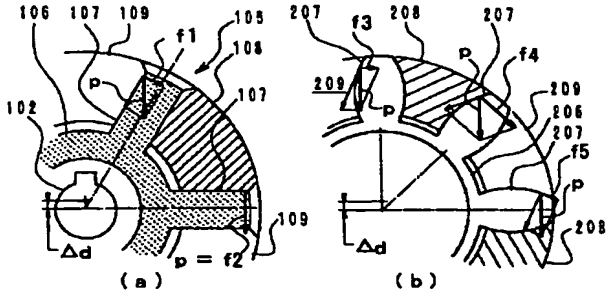
207
208

【図６】


106
107
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f1
105
108
p
107
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Δd
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(a)
207
f3
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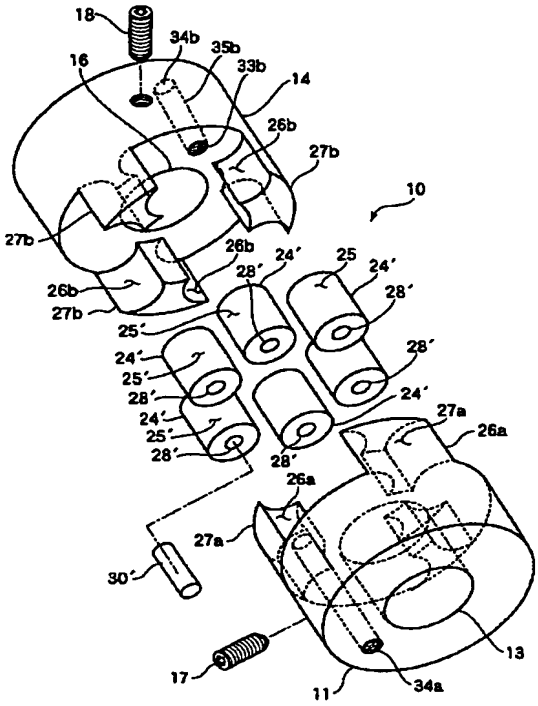
207
p
f4
209
209
p
206
207
f5
p
Δd
208
(b)

【図７】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33b
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27b
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